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ABSTRACT

This paper examines several previously-unexplained aspects of verbal morphology and syntax in Madija, an Arauan languages spoken in Peru and Brazil. These include the distribution of an auxiliary verb that occurs with some predicates but not with others and the factors that determine the choice among three different affixes marking third person agreement and three different affixes indicating a plural subject. Determination of gender and selection of the morpheme for plural subject agreement are also considered. Using the framework of Relational Grammar, a unified analysis of Madija predicate classes and verbal morphology is presented. This analysis provides further evidence for such proposals as the Unaccusative Hypothesis, P. M. Postal's proposed 1977 analysis for antipassive, the analysis of impersonal constructions as containing a dummy nominal, and the analysis of causatives as multipredicate clauses, along the lines of proposals by W. D. Davies and C. G. Rosen (1984). Findings of the analysis include a rule about the distribution of the auxiliary verb, a rule for person agreement and gender, and a rule for morpheme selection for plural subject agreement. (Contains 22 references.) (NAV)

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ED 385 153

Madija Predicates

Pamela S. Wright[1]

This article examines several previously-unexplained aspects of verbal morphology and syntax in Madija, an Arauan language spoken in Peru and Brazil. These include the distribution of an auxiliary verb which occurs with some predicates but not with others, the factors determining the choice among three different affixes marking third person agreement, and three different affixes indicating a plural subject.

Using the framework of Relational Grammar, a unified analysis of Madija predicate classes and verbal morphology can be given. This provides further evidence for such proposals as the Unaccusative Hypothesis, Postal's proposed analysis for antipassive, the analysis of impersonal constructions as containing a dummy nominal, and the analysis of causatives as multipredicate clauses (along the lines of proposals by Davies and Rosen).

1. Introduction

There are several problems surrounding the class of predicates in Madija that have not been explained in any published material. First, there is an auxiliary verb which is used at some times but not at others. Second, three distinct morphemes for third person agreement occur on the verb. Third, agreement with a plural subject is signaled by two different morphemes. Finally, gender agreement, which has been discussed by Adams and Marlett (1987), is sometimes determined by the subject and sometimes by the direct object of a transitive verb. Using Relational Grammar, this article will explain the problems listed above while providing rules on how the morphemes are used. To do this, predicates will be looked at in their subclasses of intransitive and transitive verbs, and adjectives used as predicates. Most of the data used in this article were taken from texts collected by Patsy Adams during her 35 years' working with the Madija people under the Summer Institute of Linguistics in Peru. There was no native speaker available to confirm that the text material was correct.

1.1 Typology

Madija, a member of the Arauan language group, is the mother tongue language of about 3000 speakers in Brazil and Peru. It is an agglutinating language with around twenty positions where an affix can occur. Four of these are prefixes and sixteen are suffixes (Adams and Marlett, ms.). The affixes that are important to the arguments in this article are those that show person and number

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[1] Editor's note: This article is a slightly edited version of the author's 1988 M.A. thesis at the University of North Dakota.

To thank the many people who have helped me with encouragement, advice, and support during the writing of this thesis would be impossible. I would like to give special thanks, however, to Patsy Adams for sharing her years of hard work with me, to Steve Marlett for his many readings of the original thesis and his valuable corrections and advice, and a very special thanks to the Madija people and their beautiful language.

Abbreviations: 1 - first person, 2 - second person, 3 - third person, Adv - Adverbial, Aux - auxiliary verb, Caus - causative, Comp - completive, Cop - copulative auxiliary, Decl - declarative, D - dual, F - feminine, Fut - future, Gen - genitive, Imp - imperfective, Inc - incompletive, Juss - jussive, Loc - locative, M - masculine, Neg - negative, Pl - plural, Q - question marker, S - singular.

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agreement and the aspect morpheme which, among others, reflects the gender of the clause. The causative morpheme plays a minor role as well. The positions of these morphemes are shown below.

(1) 3 2 1 7,8 16
person-number-causative-ROOT...-number...-aspect

A predicate does not normally have every position filled. In this article sentences were chosen with only the relevant affixes on the predicate whenever possible.

Word order in basic clauses is SOV: subject, object, verb. The following examples show a basic clause with its order of constituents:

(2) a. S O V Aux
Pablo kodzo ts^{h}ite i-na-bak^{h}i-hari.
Pablo lizard shoot 3-Aux-Pl.O-Comp.M
Pablo shot lizards.

b. S O V Aux
Dzodze dzami dzoho i-na-haro.
Jose axe carry 3-Aux-Comp.F
Jose carried the axe.

However, when both the subject and the object are animate, the order is sometimes OSV.

(3) O S V Aux
Mokira dzomahi dama i-na-hari.
opossum jaguar grab 3-Aux-Comp.M
The jaguar grabbed the opossum.

There is no case marking in Madija. A subject and direct object receive no special inflection but an indirect object is followed by the postposition *dza*. This fits the universal given by Greenberg (1966) that SOV languages are postpositional. This morpheme is also used for a number of obliques like location, goal, source, instrument, and benefactive. In this article *dza* will be glossed Loc to be consistent with other published work in Madija. The orthography is also that used by Adams and Marlett (ms.).

(4) a. Noba dza papeo da o-na-hari.
Noba Loc book give 1-Aux-Comp.M
I gave the book to Noba.

b. Etero Oaido dza mitha o-na-haro.
cloth Oaido Loc buy 1-Aux-Comp.F
I buy cloth for/from Oaido.

c. Oano dzami dza aoa ka i-na-hari.
Oano axe Loc tree cut 3-Aux-Comp.M
Oano cut the tree with an axe.

d. Oa pi Sena Madureira dza meme o-k^{h}a Rio Branco dza.
I * Sena Madureira Loc sky 1-go Rio Branco Loc
I fly from Sena Madureira to Rio Branco.

Madija further follows Greenberg's universals for an SOV language in that genitives precede the noun and question particles come clause final.

(5) a. O-k^{h}a abi Ø-dzok^{h}e-hari.
1-Gen father 3-die-Comp.M
My father died.

b. Oano to-k^{h}a ko?
Oano 3-go Q
Did Oano go?

Greenberg also states that if an SOV language has an inflected auxiliary it will follow the main verb. Madija has such an auxiliary. Examples of this can be seen in (2), (3), and (4). In Madija the verb, or the auxiliary verb, if present, always agrees with the subject in person. This is true for all classes of predicates. Pronouns are frequently omitted if they are not under emphasis.

(6) *Intransitive verbs*

Emphasis or clarification[2]

a. Tia pi Bino ti-da-haro.
you * Bino 2-hit-Comp.F
You *hit Bino.*

b. Oa tia o-da-haro.
I you 1-hit-Comp.F
I *hit you.*

No emphasis or clarification

c. Haha *o*-na-haro.
laugh 1-Aux-Comp.F
I laughed.

d. Haha *ti*-na-haro.
laugh 2-Aux-Comp.F
You laughed.

e. Haha Ø-na-haro.
laugh 3-Aux-Comp.F
She laughed.

f. Haha Ø-na-hari.
laugh 3-Aux-Comp.M
He laughed.

g. *O*-ts^{h}ona-haro.
1-fall-Comp.F
I fell.

h. *Ti*-ts^{h}ona-haro.
2-fall-Comp.F
You fell.

i. Ø-ts^{h}ona-haro.
3-fall-Comp.F
She fell.

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[2] The morpheme *pi/pa* has an unknown meaning. The feminine form is *pi*, while the masculine is *pa*.

j. Ø-tsʰona-hari.
3-fall-Comp.M
He fell.

Transitive verbs

k. Kodzo tsʰite *o*-na-hari.
lizard shoot 1-Aux-Comp.M
I shot the lizard.

l. Kodzo tsʰite *ti*-na-hari.
lizard shoot 2-Aux-Comp.M
You shot the lizard.

m. Bino pa tia *i*-da-haro.
Bino * you 3-hit-Comp.F
Bino hit you.

n. Tia pi Bino *ti*-da-hari.
you * Bino 2-hit-Comp.M
You hit Bino.

o. Oa tia *o*-da-haro.
I you 1-hit-Comp.F
I hit you.

p. Tia oa *ti*-da-haro.
you I 2-hit-Comp.F
You hit me.

Third person agreement with transitive verbs uses three different morphemes. This was one of the problem areas noted at the start of this article. These morphemes, and an analysis of them, will be given in section 3. The fact that the verb agrees with the subject in person can be stated in a rule.

(7) *Verb agreement:* The verb, or auxiliary verb, if present, agrees with the subject in person. What level of subject the verb agrees with will also be handled in section 3.

The verb, or auxiliary verb, if present, also agrees with the subject in number.

(8) *Intransitive verbs*

a. Ohi ti-*ki*-na-haro.
cry 2-Pl-Aux-Comp.F
You (plural) cried.

b. Bakʰo Ø-*ki*-na-hari.
arrive 3-Pl-Aux-Comp.M
They arrived.

c. Khobo ti-*ki*-na-haro.
crawl 2-Pl-Aux-Comp.F
You (plural) crawled.

d. Ti-tsʰona-*mana*-haro.
2-fall-Pl-Comp.F
You (plural) fell.

e. Ø-oada-*mana*-haro.
3-sleep-Pl-Comp.F
They slept.

f. Kodzo tsʰite ti-*ki*-na-hari.
lizard shoot 2-Pl-Aux-Comp.M
You (plural) shot the lizard.

g. Kodzo tsʰite i-na-*mana*-hari.
lizard shoot 3-Aux-Pl-Comp.M
They shot the lizard.

The selection of morpheme for plural subject agreement is another problem that this article will discuss. Because of its complex nature, this will not be discussed until section 4. Since there is agreement with the subject in number, this needs to be added to the Verb Agreement rule given in (7).

(9) *Verb Agreement:* The verb, or auxiliary verb, if present, agrees with the subject in person and number.

There is also agreement with animate objects in number. This agreement can be with either a direct or indirect object. Example (10g) shows that an inanimate object does not trigger agreement on the verb.

(10) *Agreement with indirect object*

a. Ia dza hoa hoa Ø-na-*bakʰi*-hari.
1 Loc shout shout 3-Aux-Pl-Comp.M
He shouted to us.

b. Poa deni dza oaoa o-na-*bakʰi*-haro.
3 Pl Loc call 1-Aux-Pl-Comp.F
I called to them.

c. Nadzapa piloto papeo da i-na-*bakʰi*-dza
then pilot paper give 3-Aux-Pl-Adv
Then after the pilot gave papers to them

Agreement with direct object

d. Kodzo tsʰite i-na-*bakʰi*-*mana*-hari.
lizard shoot 3-Aux-Pl-Pl-Comp.M
They shot the lizards.

e. Kodzo tsʰite ti-*ki*-na-*bakʰi*-hari.
lizard shoot 2-Pl-Aux-Pl-Comp.M
You (plural) shot the lizards.

f. Kodzo tsʰite i-na-*bakʰi*-hari.
lizard shoot 3-Aux-Pl-Comp.M
She shot the lizards.

g. Makʰi pa boba dia dia t-a-cossa-i.
man * arrows wind wind 3-Aux-over-Inc.M
The man is wrapping arrows.

Since verbs show agreement with animate objects in number, this must also be added to the verb agreement rule.

(11) *Verb agreement:* The verb, or auxiliary verb, if present, agrees with the subject in person and number and with an animate object in number.

Another important aspect of Madija syntax is gender. Adams and Marlett (1987) studied this and came to the following conclusions: Every noun in Madija is either masculine or feminine. The gender of selected nominals is reflected throughout the clause in various ways. Which nominal determines gender agreement will be fully explored in section 3. One special quirk that Madija has is that first and second persons are always feminine, even when referring to males. When a morpheme has both a feminine and a masculine form it will be glossed in this article with an F or M. Example (12) shows gender agreement on the verb.

(12) a. Haha o-na-*haro*.
laugh 1-Aux-Comp.F
I laughed.

b. Haha ti-na-*haro*.
laugh 2-Aux-Comp.F
You laughed.

c. Haha Ø-na-*haro*.
laugh 3-Aux-Comp.F
She laughed.

d. Haha Ø-na-*hari*.
laugh 3-Aux-Comp.M
He laughed.

e. O-ts^{h}ona-*haro*.
1-fall-Comp.F
I fell.

f. Ti-ts^{h}ona-*haro*.
2-fall-Comp.F
You fell.

g. Ø-ts^{h}ona-*haro*.
3-fall-Comp.F
She fell.

h. Ø-ts^{h}ona-*hari*.
3-fall-Comp.M
He fell.

Adams and Marlett (1987) have stated that the final absolutive of the clause determines the gender. In the clauses in example (12) the subject determines the gender agreement, while in the clauses in example (13) the direct object determines the gender agreement. The noun *kodzo* 'lizard' is masculine, while *aoi* 'tapir' is feminine.

(13) a. Pedro kodzo ts^{h}ite i-na-*hari*.
Pedro lizard shoot 3-Aux-Comp.M
Pedro shot the lizard.

b. Pedro aoi ts^{h}ite i-na-*haro*.
Pedro tapir shoot 3-Aux-Comp.F
Pedro shot the tapir.

1.2 Overview of article

This article is done in the framework of Relational Grammar, and a familiarity with its terminology and concepts will be assumed. For those desiring more background in the theory, this can be found in Perlmutter and Postal (1983a) and Perlmutter and Rosen (1984). There are four sections in this article. Section 1 contains a brief typology of Madija and defines the problem areas to be discussed. Section 2 looks at intransitive verbs and divides them into two classes. It provides an explanation for the distribution of the auxiliary verb. Section 3 deals with transitive verbs and three distinct constructions in which they occur. Here the problem of which nominal determines gender is explored, and an explanation of the three morphemes used for third person agreement is given. Section 4 is about a group of adjectives that are used as predicates. This section refines some of the rules stated previously and looks at plural subject agreement. A summary of the rules used closes the article.

2. Intransitive verbs

This section examines the syntax of intransitive verbs. Intransitive verbs are the only class of verbs that use the morpheme *to-* for third person agreement to indicate motion away from the speaker. When motion away is not implied, third person agreement is Ø-. In example (14a-b) the same verb is used in both clauses. With *to-* it means 'go away'; with Ø- it means 'come'.

(14) a. *To*-k^{h}a-hari.
3-go-Comp.M
He went.

b. Ø-k^{h}a-ni-hari.
3-go-back-Comp.M
He came back.

c. Bak^{h}o *to*-ki-na-hari.
arrive 3-Pl-Aux-Comp.M
They arrived there.

d. Bak^{h}i Ø-ki-na-hari.
arrive 3-Pl-Aux-Comp.M
They arrived here.

Although intransitive verbs act as a class in regards to the morpheme *to-*, there are other factors that make it desirable to subdivide intransitive verbs into two classes. In section 2.1 I argue for there being two classes of intransitive verbs. In section 2.2 I introduce the Unaccusative Hypothesis as posited by Perlmutter (1978). I then argue that the subdivision of intransitive verbs in Madija results from a difference in structure at the initial stratum. This division must be done on the basis of syntax and not semantics. Section 2.3 uses syntactic arguments for each class of intransitive verbs posited in this article. By using the difference in grammatical relations, a rule for the distribution of the auxiliary verb will be given. The interaction of the auxiliary verb with intransitive verbs also supports the idea of clause union as a multipredicate clause, as suggested by Davies and Rosen (1988).

2.1 Subcategorization

Intransitive verbs must be divided into two subgroups because of three differences in their syntactic behavior. These are: (1) whether they use the auxiliary verb, (2) which morpheme is selected for plural subject agreement, and (3) whether the intransitive verb can occur in a causative construction with the morpheme *na-*. If intransitive verbs are treated as a single group it is impossible to predict their behavior in regards to the three differences listed above. Yet these

differences are systematic and can be predicted if the intransitive verbs are divided into two classes.

2.1.1 Auxiliary

The first difference listed was that of the use or nonuse of the auxiliary verb. Derbyshire (1986) notes the existence of this auxiliary in related languages and how it affects inflection on verbs. When the auxiliary is present it receives the inflection; when it is not present the main verb receives the inflection. In Madija an intransitive verb is consistent in its use of the auxiliary. Some verbs always occur with the auxiliary while the remainder never do.

(15) *With auxiliary*

a. Dzobi Ø-*na*-hari.
dance 3-Aux-Comp.M
He dances.

b. Ohi ti-*na*-haro.
cry 2-Aux-Comp.F
You cried.

c. Haha Ø-*na*-hari.
laugh 3-Aux-Comp.M
He laughed.

d. Hopha Ø-*na*-hari.
run 3-Aux-Comp.M
He ran.

Without auxiliary

e. O-k^{h}a abi Ø-dzok^{h}e-hari.
1s-Gen father 3-die-Comp.M
My father died.

f. Ø-oada-hari.
3-sleep-Comp.M
He slept.

g. Ø-ts^{h}ona-hari.
3-fall-Comp.M
He fell.

2.1.2 Plural subject agreement

The verb in Madija agrees in number with the subject. There are two morphemes used for plural subject agreement, *ki-* and *-mana*. Intransitive verbs use both of these morphemes, yet their distribution is not haphazard. The intransitive verbs that use an auxiliary verb use the morpheme *ki-*. Those verbs which do not use the auxiliary verb use *-mana*.

(16) *With auxiliary*

a. Ohi ti-*ki*-na-haro.
cry 2-Pl-Aux-Comp.F
You (plural) cried.

b. Bak^{h}o Ø-*ki*-na-hari.
arrive 3-Pl-Aux-Comp.M
They arrived.

c. Khobo ti-*ki*-na-haro.
crawl 2-Pl-Aux-Comp.F
You (plural) crawled.

Without auxiliary

d. Ti-ts^{h}ona-*mana*-haro.
2-fall-Pl-Comp.F
You (plural) fell.

e. Ø-oada-*mana*-haro.
3-sleep-Pl-Comp.F
They slept.

Again, having two classes of intransitive verbs enables a prediction to be made about which plural morpheme to use.

2.1.3 Causative morpheme na-

There is a prefix in Madija that carries the meaning 'to cause or make happen'. This morpheme is phonetically the same as the auxiliary verb, but the two morphemes should not be confused. Their location and function in a clause are very different. The auxiliary functions as a separate word. It follows a main verb and receives all the inflection. The causative morpheme functions as a prefix, occurring between the person agreement and the main verb.

(17) a. Ti-*na*-madi-mana-na!
2-Caus-dwell-Pl-Juss
May you (plural) let him stay.

b. Nadzapa bani bedi Ø-*na*-hika-ridza-hari.
then insects small.M 3-Caus-end-around-ImpF.M
Then he killed the small insects around him.

The morpheme *na-* introduces an agent that causes the action to take place. This means that an intransitive verb can be used in a transitive sentence, as in example (17). Yet this morpheme does not occur on all intransitive verbs. Only those verbs which do not use the auxiliary verb appear with *na-*. Clearly, a division of intransitive verbs into the two groups already mentioned would be beneficial to explain the usage of *na-*. Without this division intransitive verbs would have to be individually marked as to whether or not they can make use of *na-*.

2.1.4 Summary

In the sections above, it has been shown that intransitive verbs split into two classes on the basis of three criteria. The first of these is whether the auxiliary verb is used or not used. The second is which morpheme is selected to show plural subject agreement. The third is whether the verb can occur with the causative prefix *na-*. The important factor about this division is that each criterion divides the verbs into identical classes. A verb which uses the auxiliary verb will select the plural subject agreement *ki-*, while one that does not use the auxiliary verb will use *-mana*. Only those verbs which do not use the auxiliary verb appear with the causative *na-*. Dividing these verbs into two subclasses is a much less costly approach than treating all intransitive verbs as one class and marking each verb for its behavior. Under the system suggested here, only the class of a verb must be marked, the other variables being determined by this class.

(18) *Class 1 verbs*

a. occur with auxiliary verb
b. occur with plural subject agreement *ki-*
c. cannot occur with causative morpheme *na-*

Class 2 verbs

a. occur without auxiliary verb
b. occur with plural subject agreement *-mana*
c. can occur with causative morpheme *na-*

It has been established that two classes of intransitive verbs are needed in Madija. In the following sections I will discuss how these are not simply arbitrary classes but are based on initial grammatical relations. This will enable a rule to be written for the distribution of the auxiliary verb.

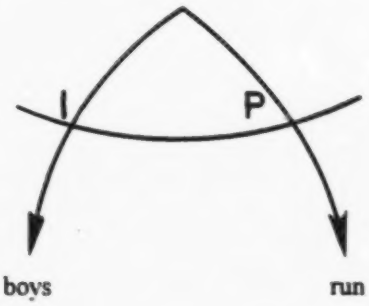
2.2 Unaccusative Hypothesis

Perlmutter (1978) has advanced the Unaccusative Hypothesis. This hypothesis makes the claim that there are two kinds of intransitive verbs in every language. These two kinds of intransitive verbs are distinguished by different initial strata. Perlmutter named the two types of verbs unergative and unaccusative. An example of each of these two types in English would be the following two sentences:

(19) a. Boys run.
b. Ice melts.

In sentence (19a) the subject, *boys*, is in control of the action. It is an example of an unergative verb. An unergative verb has the structure usually thought of for an intransitive verb. The verb authorizes an initial 1 but no initial 2.

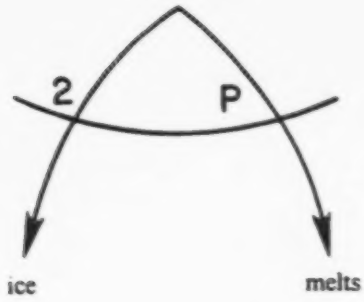
(20)



With unergative verbs the subject is usually in control, often taking the semantic role of agent or actor. The verb is usually volitional.

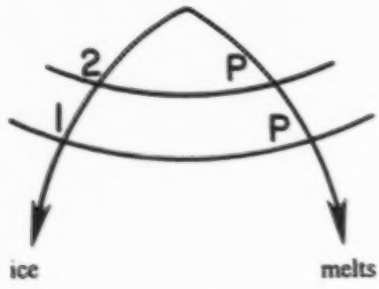
Sentence (19b) is very different. Here the action is happening to the *ice*. *Ice* is the surface subject but it also has the semantic role of patient, which is usually associated with the direct object. Under Perlmutter's proposal, *ice* is a direct object at the initial level. The verb *melt* authorizes a 2, not a 1.

(21)



This type of verb is called an 'unaccusative'. One of the laws posited in RG is that every clause must have a 1 in the final stratum. An unaccusative, as represented in example (21), does not meet this law. Another stratum must be added where the initial 2 advances to a 1. This is called Unaccusative Advancement.

(22)



As can be seen from the diagram above, the nominal is headed by both a 2 and a 1. In the first stratum it is a 2; in the second stratum, a 1. This explains why *ice* has some properties of a direct object, such as patient, and yet is the final subject of the sentence. The subject of an unaccusative verb often has the semantic role of patient. Cross-linguistically, unaccusative verbs tend to describe nonvolitional actions or states.

2.2.1 Unaccusative hypothesis and Madija verbs

In Madija a semantic cohesiveness seems to exist within each class of intransitive verbs posited in section 2.1 of this article. A sample listing of these verbs might give a clearer indication of the semantic unity of each group.

(23) *Intransitive verbs which require the auxiliary*

bak^{h}o	arrive
bohe	dive
dzobi	dance
haha	laugh
hikoro	snort

hoa	shout
kati	grope
k^{h}obo	crawl
oaha	sway
oaoa	call
oati	speak
ohi	cry
thiri	twist around
thoho	cough

Intransitive verbs which do not use the auxiliary

hika	die, end
madi	dwell
oada	sleep
oatia	die, faint
oatidze	be happy
ts^{h}ona	fall

The verbs that use the auxiliary tend to be those in which the subject is in control of the action. Those that do not use the auxiliary are nonvolitional; the subject is not in control. This fits the general pattern of unaccusative and unergative verbs.

2.2.2 Semantics vs. syntax

Rosen (1984) shows that basing an analysis on semantics leads to incorrect predictions about the class that a verb falls into. The selection of auxiliary verb in Italian does not correlate with semantics. Instead Rosen has shown that the selection of auxiliary verb in Italian is determined by the grammatical relations present in the clause. She states, "Select *essere* 'be' in any clause that contains a 1-arc and an object arc with the same head. Otherwise, select *avere* 'have'." (Rosen 1984:46). Using a rule based on grammatical relations, Rosen is able to explain which auxiliary must be selected.

In Madija, Class 1 verbs fit the general pattern of unergatives by being volitional, while Class 2 verbs are like the unaccusative in that they are nonvolitional. Yet the classes were formed not by semantics but by the syntactic behavior of the verb. Each intransitive verb was evaluated by the three criteria discussed in section 2.1. A Class 1 verb occurs with the auxiliary verb and the plural agreement *ki-* but cannot occur with the causative *na-*. A Class 2 verb does not occur with the auxiliary verb, does occur with *-mana* for plural subject agreement, and does occur with the causative *na-*. An analysis based on semantics would have counterexamples. Madija has three verbs that mean 'to go'. The verb *k^{h}a* is used for a singular subject, *kada* for a dual subject, and *hai* for a plural subject. Based on semantics these verbs all fit in the same class, all having the same meaning. Since 'to go' is a volitional action, these verbs should be placed in Class 1 with other volitional verbs. Yet the syntactic behavior of these verbs places them in different classes. These verbs do not use the plural morphemes and there are no cases of them occurring with the causative *na-* in the texts available. If a native speaker were available this could be checked out. The only readily available test is the auxiliary verb. Only one of them uses the auxiliary verb and is placed in Class 1. The other two do not use the auxiliary verb and belong in Class 2.

(24) *Class 1*

a. Hai ti-na-haro.
go.Pl 2-Aux-Comp.F
You (plural) went.

Class 2

b. Ti-k^{h}a-haro.
2-go.S-Comp.F
You (singular) went.

c. Ti-kada-haro.
2-go.D-Comp.F
You (dual) went.

Semantics makes wrong predictions about the verbs that mean 'to go' in Madija. Although semantics can give us clues that help in forming a hypothesis, the final analysis must rest on syntactic evidence.

2.3 Syntactic argumentation

It has been shown in 2.1 that intransitive verbs in Madija fall into two classes. I would like to argue that these two classes are best distinguished by the concepts unergative and unaccusative. I will argue that the verbs defined as Class 1 in 2.1 are unergative and have an initial 1. I will also argue that Class 2 verbs are unaccusative and have no initial 1.

2.3.1 Unergative, initial 1

One of the most striking characteristics of the unergative verbs is in their use of the auxiliary verb. These verbs have an initial 1 but no initial 2. The unaccusative verbs, which do not use the auxiliary verb, have an initial 2 but no initial 1. Two possible hypotheses can be drawn from these facts. Either the auxiliary verb is used when the verb has an initial 1, or the auxiliary verb is used when the verb has no initial 2. To decide between these hypotheses other evidence must be found. A verb with a transitive initial stratum would provide that evidence. If it occurs with the auxiliary verb, it is evidence that the initial 1 is determining the presence of the auxiliary. If it does not occur with the auxiliary verb, it is evidence that the presence of an initial 2 is the important factor. I will make the assumption here that a verb which occurs in a simple, finally transitive clause has an initial transitive stratum. These are the verbs that will be discussed in section 3 as transitive verbs. This does not include derived verbs that are formed with a causative morpheme. Transitive verbs in Madija do take the auxiliary verb as shown in (25).

(25) *Transitive verbs*

a. Dzoho i-*na*-ni-haro.
carry 3-Aux-back-Comp.F
S/he carried her back.

b. Pedro ts^{h}ite i-*na*-haro de.
Pedro shoot 3-Aux-Comp.F Decl.
Pedro shot her.

c. Poni dza bani da o-*na*-hari.
her Loc meat give 1-Aux-Comp.M
I gave her meat.

d. Kodzo ts^{h}ite ti-ki-*na*-hari.
lizard shoot 2-Pl-Aux-Comp.M
You (plural) shot the lizard.

Both transitive and unergative verbs take the auxiliary verb. It is reasonable then to keep the hypothesis that a verb which authorizes a 1 will also use the auxiliary verb. This can be used as

evidence for an initial 1 with unergative verbs and the absence of an initial 1 with unaccusative verbs. The rule can be stated in this way:

(26) *Auxiliary rule:* Use the auxiliary verb when there is an initial 1.

There are a few exceptions to the auxiliary rule given in (26). A small class of transitive verbs that do not take the auxiliary verb does exist. In looking through texts, six such verbs have been found. Three of these are homophonous with a regular transitive verb. For example, *da* without the auxiliary means 'to hit'; with the auxiliary it means 'to give'.

(27) a. Poni dza bani da o-na-hari.
her Loc meat give 1-Aux-Comp.M
I gave her meat.

b. Poni o-da-haro.
her 1-hit-Comp.F
I hit her.

The transitive verbs which do not take the auxiliary, with their homonyms, are:

(28)

without auxiliary		*with auxiliary*
ba	put	insert (Pl)
da	hit	give
di	pick up	
hipa	eat	
mit^{h}a	hear	buy
pike	spin	

Since there was no native speaker available to check the clauses in which these verbs appeared, it is possible that this class could be either larger or smaller. It is also possible that a homonym form for each of these verbs exists. These verbs are a small class which are exceptions to the general rule but do not affect the overall analysis.

2.3.2 Unaccusatives, no initial 1

The absence of the auxiliary verb is not the only evidence available for saying that unaccusative verbs do not have an initial 1. It has already been mentioned that unaccusative verbs can take the causative *na-* while unergative verbs cannot. To explain the significance of this, a brief explanation of clause union is needed. Davies and Rosen (1988:54) define a clause as containing clause union when it meets these two criteria:

(29) a. A Union properly contains the makings of a clause which we will call the inner clause. In general there is strong evidence that the syntactic representation formally assigned to that clause should appear intact as part of the syntactic representation of the Union.

b. While the above could be said of any construction involving sentence embedding, a Union is unique in that it also exhibits a 'flat' structure resembling a single complementless clause.

In other words, by some tests it acts like one clause, but by other tests it acts like two. Cross-linguistically, clause union often happens with a causative morpheme. Consider clauses in Madija that contain the causative *na-*.

(30) a. Ti-na-madi-mana-na!
2-Caus-dwell-Pl-Juss
May you (plural) let him stay.

b. Nadzapa bani bedi Ø-na-hika-ridza-hari.
then insects small.M 3-Caus-end-around-ImpF.M
Then he killed the small insects around him.

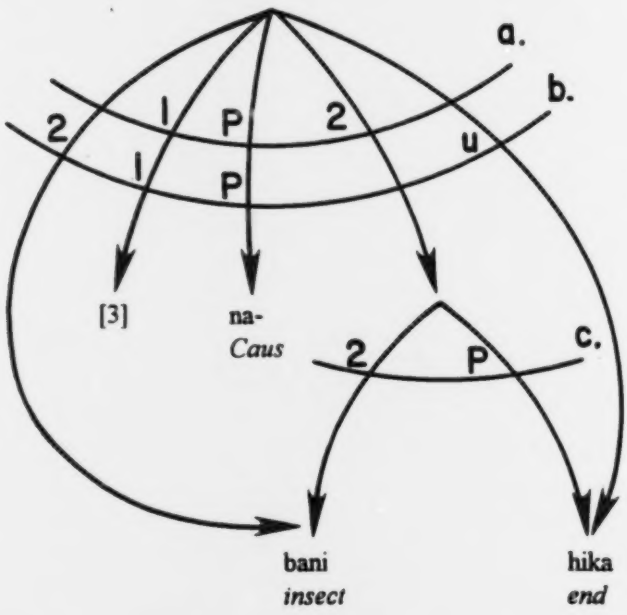
Both of the sentences above have an unaccusative verb to which the causative attaches. This verb is the head of the inner clause. In sentence (30a) the inner clause is formed from the verb *madi* 'to dwell'. An English gloss of the inner clause would be 'he stays'. The verb in (30b) is *hika* 'to end'. This is combined with *bani bedi* 'small insects' to give an inner clause of 'small insects end'. This fulfills the first requirement that the makings of two clauses must be present; however, there is no way to separate the two clauses into subordinate and main clauses. The causative verb attaches directly to the inner verb forming one word. This meets the second requirement that all nominals act as clause mates. It is not a case of simple embedding but a case of clause union.

It has already been stated that the causative *na-* occurs with unaccusative verbs but not with unergative verbs. There are two possible explanations: either this causative can only occur when there is a 2 in the preunion stratum or it can only occur when there is no 1 in the preunion stratum. The preunion stratum is the last stratum of the inner clause before clause union takes place. Since this morpheme does not occur with transitive verbs, which have both a 1 and a 2, the absence of a 1 seems to be the correct hypothesis. A rule can be made stating this.

(31) *Causative na-*: The causative *na-* can be used only when there is no 1 in the preunion stratum.

This rule for the causative *na-* has theoretical implications for how clause union is represented. The standard way of diagramming clause union has been with two clauses. The clause referred to in (29) as the inner clause would be considered a downstairs clause. It is the complement to an upstairs clause with the causative morpheme as its head. The downstairs clause is then raised into the upstairs clause. Sentence (30b) would have a diagram like this:

(32)

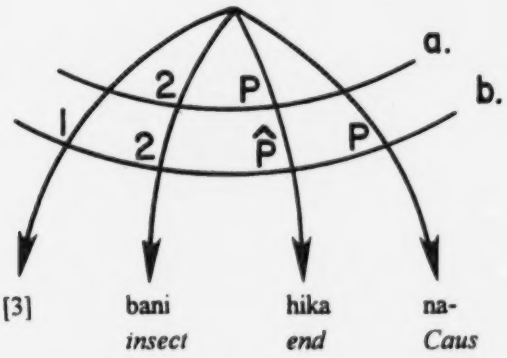


This presents a problem for the Final 1 Law (Perlmutter and Postal 1983b). This law claims that every final stratum must have a 1. The diagram in (32) has two final strata, *b* and *c*. Stratum *b*

contains a 1 but stratum *c* does not. This could be remedied by adding a stratum *d* where Unaccusative Advancement takes place. That would fulfill the Final 1 Law but would violate the rule written in (31) about the use of the causative *na-*. The rule, as presently stated, claims that *na-* can occur only when there is no 1. If there is a final 1 then the causative *na-* cannot be used. If there is no final 1 the Final 1 Law is violated. This same difficulty has been found in Italian (Rosen 1983).

Davies and Rosen (1988) have suggested that clause union is represented better as a multipredicate clause. Although there are two predicates present, there is only one clausal node. The inner clause starts at the initial stratum, and another predicate, with its arguments, is added at the union stratum. Sentence (30b) diagrammed in this way looks quite different from example (32).

(33)



With this analysis there is only one final stratum. The Final 1 Law would apply only to stratum *b*. As this stratum contains a 1, the law is not violated. This allows the Final 1 Law to remain in its present form. Davies and Rosen's analysis also removes a disjunction in the Motivated Chomage Law and makes illegal some clause structures that do not occur naturally but are not ruled out with the biclausal analysis.

The representation of clause union posited by Davies and Rosen is important to Madija for three reasons. The first is that it allows a rule for the causative morpheme *na-* to be stated simply without violating the Final 1 Law. Secondly, the biclausal analysis of clause union, shown in (32), presents a problem for the Auxiliary Rule given in section 2.3.1 and repeated here.

(34) *Auxiliary Rule:* Use the auxiliary verb when there is an initial 1.

In diagram (32) the causative *na-* authorizes a 1 which is the initial 1 of the upstairs clause, as shown in stratum a. That means that the Auxiliary Rule, as presently written, must apply. Since these sentences do not occur with the auxiliary verb, the rule would have to be modified. This would not be easy to do. An ad hoc stipulation would have to be added.

(35) *Auxiliary Rule (revised):* Use the auxiliary verb when there is an initial 1 unless that initial 1 is authorized by a causative morpheme.

With Davies and Rosen's analysis this is not a problem. In example (33) the causative *na-* authorizes a 1, but it enters at the union stratum, NOT at the initial stratum. The auxiliary rule would therefore predict that the sentence should not use the auxiliary verb. Using Davies and Rosen's analysis actually strengthens the auxiliary rule.

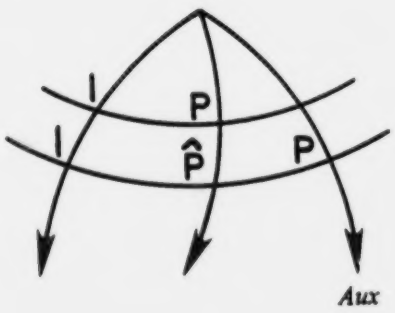
Thirdly, the notion of clause union can also be used to explain why the auxiliary verb receives inflection instead of the main verb. Greenberg (1966:111) makes predictions about verbs and auxiliary verbs. In universals 16 and 13 he states:

(36) a. In languages with a dominant order SOV, an inflected auxiliary always follows the main verb.

b. If the nominal object always precedes the verb, then verb forms subordinate to the main verb also precede it.

At first glance, these two statements appear contradictory; subordinate verbs must precede the main verb, yet inflected auxiliaries must follow it. The conclusion is that inflected auxiliaries are not subordinate but are the main verb. The apparent problem is one of terminology. In (36a) 'main verb' is used in the sense that it has been used in this article. It refers to the verb that describes the action or state. In (36b) 'main verb' could be replaced with final predicate. If the auxiliary verb is a form of clause union then the main verb as used in (36a) has become a chomeur. It is now subordinate to the auxiliary and should precede it. The auxiliary verb, as the final predicate, now receives the inflection. An unergative verb would have a relational network like this:

(37)



This can simplify the Verb Agreement rule last stated in (11). We can simply state that agreement occurs on the final P. It can also be stated that agreement is with the final subject, as an unaccusative verb has no initial subject. The level of the object agreement will be discussed in section 3.

(38) *Verb agreement:* The final predicate agrees with the final subject in person and number and with an animate object in number.

2.4 Summary

I have shown that there are two classes of intransitive verbs in Madija. These verbs are distinguished by the presence or absence of the auxiliary verb, their choice of morpheme for plural subject agreement, and their ability to cooccur with the causative morpheme *na-*. The Unaccusative Hypothesis advanced by Perlmutter fits these two classes of intransitive verbs in Madija. Evidence for an initial 1 in unergative verbs is given by the auxiliary verb. That the unaccusative verbs have no initial 1 is shown by the causative *na-*. The absence of a 1 is a necessary condition for this morpheme to occur. The analysis of clause union as presented by Davies and Rosen further supports the rule that the auxiliary verb is used with an initial 1. Although the causative morpheme authorizes a 1, it is not an initial 1, so that the Auxiliary rule does not apply. The idea of clause union can be extended to simplify verb agreement as well.

The rules that were developed in this section of the article are as follows. These rules will be refined throughout this article.

(39) *Auxiliary Rule*: Use the auxiliary verb when there is an initial 1.

Causative na-: The causative *na-* can be used only when there is no 1 in the preunion stratum.

Verb agreement: The final predicate agrees with the final subject in person and number and with an animate object in number.

3. Transitive verbs

The next class of verbs to be discussed is that of transitive verbs. This section will give insight into the morphemes used for third person agreement and support the rule for gender agreement given by Adams and Marlett (1987). Section 3.1 will simply define the syntactic behavior of each construction by looking at the final level. The importance of which level is determining agreement, and the grammatical representation of each construction along with syntactic evidence, will be handled in sections 3.2 through 3.4. During this process the rule for verb agreement will be refined and the rule for gender agreement proposed by Adams and Marlett (1987) will be defended. Also, the different morphemes used for third person will be explained.

3.1 Syntactic description of constructions

The transitive verbs in Madija occur in three distinct constructions. These constructions can be distinguished from each other by the choice of third person, gender, and number agreement. Each transitive verb may be found in any of the three constructions.

3.1.1 Person agreement

The morphemes used for first and second person remain the same throughout all classes of verbs. There are, however, three morphemes used for third person. The unergative and unaccusative verbs use *Ø-* for third person. Transitive verbs sometimes use this morpheme but they can also use two other morphemes for third person agreement, *i-* and *to-*. This difference in third person agreement is the most visible of the differences between the constructions and is the easiest way to classify them.

(40) *Construction 1*

a. Kodzo tsʰite *i*-na-hari.
lizard shoot 3-Aux-Comp.M
S/he shot the lizard.

b. Aoi dzoho *i*-na-haro.
tapir carry 3-Aux-Comp.F
S/he carried the tapir.

Construction 2

c. Kodzo tsʰite *Ø*-na-hari.
lizard shoot 3-Aux-Comp.M
He shot the lizard.

d. Aoi dzoho *Ø*-na-hari.
tapir carry 3-Aux-Comp.M
He carried the tapir.

Construction 3

e. Oa ts^{h}ite *to*-na-haro.
1 shoot 3-Aux-Comp.F
Someone shot me. OR *I was shot.*

f. Aoi dzoho *to*-na-haro.
tapir carry 3-Aux-Comp.F
Someone carried the tapir. OR *The tapir was carried.*

Construction 1 uses the morpheme *i-* for third person agreement. Construction 2 is like the unergative and unaccusative verbs and uses *Ø-*, while Construction 3 uses *to-*.

3.1.2 Gender Agreement

A second difference between the three constructions is with gender agreement. In this section the facts will be presented. The analysis proposed by Adams and Marlett will be discussed in the next section. The noun *kodzo* 'lizard' is masculine (M) while *aoi* 'tapir' is feminine (F).

(41) *Construction 1*

a. Pedro kodzo ts^{h}ite i-na-*hari*.
Pedro lizard shoot 3-Aux-Comp.M
Pedro shot the lizard.

b. Pedro aoi ts^{h}ite i-na-*haro*.
Pedro tapir shoot 3-Aux-Comp.F
Pedro shot the tapir.

Construction 2

c. Kodzo ts^{h}ite Ø-na-*hari*.
lizard shoot 3-Aux-Comp.M
He shot the lizard.

d. Aoi ts^{h}ite Ø-na-*hari*.
tapir shoot 3-Aux-Comp.M
He shot the tapir.

e. Kodzo ts^{h}ite Ø-na-*haro*.
lizard shoot 3-Aux-Comp.F
She shot the lizard.

Construction 3

f. Kodzo ts^{h}ite to-na-*hari*.
lizard shoot 3-Aux-Comp.M
Someone shot the lizard. OR *The lizard was shot.*

g. Aoi ts^{h}ite to-na-*haro*.
tapir shoot 3-Aux-Comp.F
Someone shot the tapir. OR *The tapir was shot.*

In Construction 1, shown in examples (41a) and (41b), the subject, *Pedro*, is clearly masculine. Yet when the direct object is feminine, as with *aoi*, the clause bears feminine gender. The direct object is determining gender agreement.

Construction 2, shown in examples (41c) through (41e), is different. In both (41c) and (41d) the clause has masculine agreement, although the direct object in (41d) is feminine. The agreement

here cannot be with the direct object but must be with the subject. Example (41e) shows a clause in this construction with a feminine subject and a masculine direct object. The marking is feminine, agreeing with the subject.

Examples (41f) and (41g) have only one nominal present. The gender of these clauses agrees with this nominal. RG would posit that there is an unspecified subject for these sentences and that the nominal present is the initial direct object. Arguments for considering this a final direct object will be given in section 3.4. For now, it will be assumed that agreement is with the direct object.

In Constructions 1 and 3 the gender is determined by the direct object. In Construction 2 it is determined by the subject. First and second person agreement remains the same, so the only way to determine the construction type for a clause with a first or second person subject is by gender agreement. As stated previously, first and second persons are always feminine.

(42) *Agreement with the direct object*

a. Kodzo tsʰite o-na-*hari*.
lizard shoot 1-Aux-Comp.M
I shot the lizard.

b. Aoi tsʰite o-na-*haro*.
tapir shoot 1-Aux-Comp.F
I shot the tapir.

c. Kodzo tsʰite ti-na-*hari*.
lizard shoot 2-Aux-Comp.M
You shot the lizard.

d. Aoi tsʰite ti-na-*haro*.
tapir shoot 2-Aux-Comp.F
You shot the tapir.

Agreement with the subject

e. Kodzo tsʰite o-na-*haro*.
lizard shoot 1-Aux-Comp.F
I shot the lizard.

f. Aoi tsʰite o-na-*haro*.
tapir shoot 1-Aux-Comp.F
I shot the tapir.

g. Kodzo tsʰite ti-na-*haro*.
lizard shoot 2-Aux-Comp.F
You shot the lizard.

h. Aoi tsʰite ti-na-*haro*.
tapir shoot 2-Aux-Comp.F
You shot the tapir.

Of course when the subject and direct object are the same gender then it is ambiguous which construction type is being used. Compare (42b) with (42f) and (42d) with (42h).

3.1.3 Plural agreement

The third difference between the constructions is in their use of plural agreement. The morpheme used to show agreement with a first person subject has different forms for singular and plural.

(43) a. Ohi o-na-haro.
cry 1.S-Aux-Comp.F
I cried.

b. Ohi i-na-haro.
cry 1.P-Aux-Comp.F
We cried.

Clauses with a first person subject never show number agreement by using the morphemes *ki-* and *-mana*, which were mentioned in section 2.1.2. This discussion is limited to clauses with a second or third person subject. Each construction uses *ki-* and *-mana* in a different way, as can be seen in example (44).

(44) *Construction 1*

a. Kodzo tsʰite ti-*ki*-na-hari.
lizard shoot 2-Pl-Aux-Comp.M
You (plural) shot the lizard.

b. Kodzo tsʰite i-na-*mana*-hari.
lizard shoot 3-Aux-Pl-Comp.M
They shot the lizard.

Construction 2

c. Kodzo tsʰite ti-*ki*-na-haro.
lizard shoot 2-Pl-Aux-Comp.F
You (plural) shot the lizard.

d. Kodzo tsʰite Ø-*ki*-na-hari.
lizard shoot 3-Pl-Aux-Comp.M
They shot the lizard.

Construction 1 uses *ki-* with a second person subject and *-mana* for a third person subject. Construction 2 is more regular, using *ki-* for both. Construction 3 rarely occurs with plural subject agreement at all. Only one example could be found. In this case it uses the plural *ki-*.

(45) *Construction 3*

Naraa ima-siri oati to-*ki*-na-haro, amonehe.
but story-lame speak 3-Pl-Aux-Comp.F woman
But gossip was spoken by the women.

Plural subject agreement is fairly consistent for transitive verbs. The morpheme *ki-* is used in every place except with a third person subject in Construction 1. Plural subject agreement will be fully explained in section 4.2.

The morpheme *-bakʰi* is used with plural, animate direct or indirect objects. This morpheme can cooccur with either of the morphemes used for plural subject agreement. In this section we will look at agreement with a direct object.

(46) *Construction 1*

a. Kodzo tsʰite i-na-*bakʰi*-*mana*-hari.
lizard shoot 3-Aux-Pl-Pl-Comp.M
They shot the lizards.

b. Kodzo tsʰite ti-*ki*-na-*bakʰi*-hari.
lizard shoot 2-Pl-Aux-Pl-Comp.M
You (plural) shot the lizards.

c. Kodzo tsʰite i-na-*bakʰi*-hari.
lizard shoot 3-Aux-Pl-Comp.M
S/he shot the lizards.

Construction 3

d. Kodzo tsʰite to-na-*bakʰi*-hari.
lizard shoot 3-Aux-Pl-Comp.M
Someone shot the lizards. OR *Lizards were shot.*

Sentence (46a) shows *-bakʰi* with the morpheme *-mana* and sentence (46b) shows it with *ki-*. Both of these possibilities are fairly common. In (46c) *-bakʰi* is the only plural morpheme. These are all in Construction 1. The use of *-bakʰi* in Construction 3 is shown in (46d). The construction that is missing from these examples is Construction 2. This construction does not appear to use *-bakʰi* at all for agreement with a direct object.

Another morpheme, *ta-*, is used with plural direct objects when the action is distributive in nature. This morpheme is not used often and I have found it on only eight different verbs. It can cooccur with *-mana* but has not been found with either *ki-* or *-bakʰi*. One unexplained quirk of the morpheme *ta-* is that when it is used, a verb which normally uses the auxiliary will not use it. Construction 1 is the only one to use this morpheme.

(47) *Construction 1*

a. Oaha o-*ta*-tsʰite-hari.
parrot 1-Pl-shoot-Comp.M
I shot the parrots (one by one).'

b. Tamaco-na oaha i-*ta*-tsʰite-*mana*-hari.
Tamaco parrot 3-Pl-shoot-Pl-Comp.M
Tamaco and they shot the parrots.

The choice of morpheme to show plural direct object agreement differs among the three constructions. Construction 1 uses both *-bakʰi* and *ta-*. Construction 2 uses neither of these morphemes, while Construction 3 uses only *-bakʰi*. It is possible that other combinations of plurals that do not occur in texts could be elicited from a native speaker. I would expect to find that *ta-* can also occur in Construction 3.

3.1.4 Summary

There are three distinct constructions using transitive verbs. They differ in the third person, gender, and plural agreement. These differences are summarized here in chart form for easy reference. Unergative and unaccusative verbs have been added for comparison.

(48)

construction	1	2	3	unerg.	unacc.
3 person	i-	Ø-	to-	Ø-	Ø-
gender	direct	subject object	direct	subject object	subject
plural subject 3 person 2 person	 -mana ki-	 ki- ki-	 ki-	 ki- ki-	 -mana -mana
plural direct object	 -bak^{h}i ta-		 -bak^{h}i		

This section has given an overview of the differences among the three constructions used with transitive verbs. Constructions 1 and 3 are the most similar, both of them having gender determined by the direct object and using *-bak^{h}i* for agreement with a direct object. All of the transitive verbs use *ki-* for plural subject agreement, except for Construction 1 with a third person subject.

The following sections will look at a grammatical analysis for each construction using transitive verbs. Section 3.2 will deal with Construction 1 and begin defining the difference between the morphemes used for third person agreement. Construction 2 will be handled in section 3.3 and the rule proposed by Adams and Marlett (1987) for determining gender will be defended. In section 3.4 third person agreement will be refined and Construction 3 discussed.

3.2 Construction 1

There are two major differences between Construction 1 clauses and clauses with unergative or unaccusative verbs. First, the third person agreement used with intransitive verbs is *Ø-*, while in transitive Construction 1 it is *i-*. Second, with intransitive verbs gender agreement is determined by the subject, while in transitive Construction 1 it is determined by the direct object. Since intransitive verbs behave one way and the transitive verbs in Construction 1 another, it is possible to say that this difference is determined by the transitivity of the clause. This transitivity could be either initial or final, but I show below that it is final.

3.2.1 Ergative

The concepts of ergative and absolutive are not primitives of RG but are used in the theory, since they are relevant to the grammars of many languages. They are defined informally in this way (Harris 1984):

(49) *ergative:* the subject of a transitive stratum

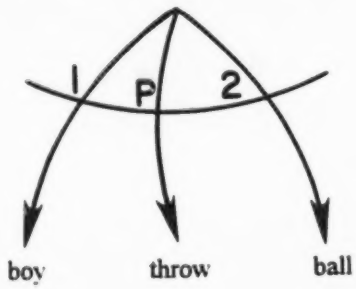
absolutive: the subject of an intransitive stratum OR the direct object of any stratum

It is important to realize that this definition applies to the grammatical relations within a specific stratum, not to the clause as a whole. Since it is the definition of relations within a stratum it can be applied to any stratum. As an illustration, look at two English sentences. The first sentence has a final transitive stratum while the second one has a final intransitive stratum.

(50) a. The boy throws the ball.
b. The dog runs.

In the two sentences above, *boy* is, by definition, an ergative in the final stratum since it is the 1 of a transitive stratum. Both *ball* and *dog* are absolutives of their final strata. *Ball* is the 2 of a transitive stratum while *dog* is the 1 of an intransitive stratum. In this article the term ergative will be used in a restricted sense to refer to a final ergative. A clause with an ergative in the final stratum will be called an ergative clause. The stratal diagram of an ergative clause is that of a simple transitive clause, as shown below.

(51)



This concept of ergative and absolutive can be profitably used in Madija grammar. Although every language has ergatives and absolutives by definition, not every language distinguishes the two. English is an example where a final ergative subject is marked no differently than a final absolutive subject. Many languages, however, do make a distinction between the two. A language is often called an ergative language if it "align(s) intransitive subjects and transitive objects in contrast with transitive subjects for the purpose of case marking and other grammatical phenomena" (Davies 1984:332). Languages that are commonly referred to as ergative languages include Georgian, Inupiaq, Kabardian, Kala Lagaw Langgus, and Udi (Harris 1984). Madija should also be considered an ergative language by this definition because of third person agreement morphology and gender agreement, as shown below. If Construction 1 is accepted as a finally transitive clause, here referred to as an ergative clause, then third person agreement and gender are easily explained.

3.2.2 Syntactic arguments

One evidence that Construction 1 clauses are finally transitive is the occurrence of plural agreement with the direct object. In section 1.1 it was stated that *-bakʰi* shows agreement with a plural direct or indirect object. The morpheme *ta-* is used with a plural direct object when the action is distributive. This can be captured in a rule.

(52) *Number agreement:*
use *ta-* for plural, distributive 2;
use *-bakʰi* for plural animate objects

Only one morpheme showing number agreement with an object can occur in a clause.

The term 'objects' is used in RG to refer to both direct and indirect objects. The rule for number agreement must specify that only one morpheme showing agreement with a plural object can occur in a clause. This is because *-bakʰi* and *ta-* never occur in the same clause; and although *-bakʰi* can agree with either a direct or an indirect animate object, it never occurs twice in a clause.

Construction 1 uses both *-bakʰi* and *ta-* to show agreement. Since *-bakʰi* shows agreement with either a direct or an indirect animate object, it can occur on intransitive verbs. The plural agreement *ta-*, however, shows agreement only with a direct object and occurs only in

Construction 1. Since a finally intransitive clause has no direct object, *ta-* cannot occur there. The clauses that contain *ta-* are finally transitive.

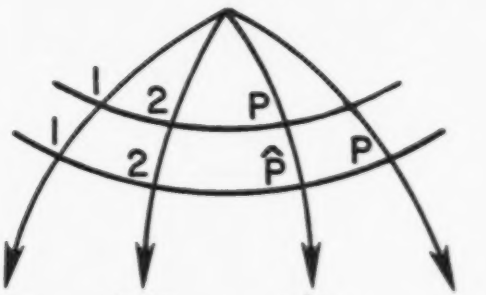
(53) a. Oaha o-*ta*-ts^{h}ite-hari.
parrot 1-Pl-shoot-Comp.M
I shot the parrots (one by one).

b. Tamaco-na oaha i-*ta*-ts^{h}ite-*mana*-hari.
parrot 3-Pl-shoot-Pl-Comp.M
Tamaco and they shot the parrots.

Accepting Construction 1 as an ergative clause fits the rule given by Adams and Marlett (1987:4) for determining gender. They state "gender agreement in the clause is determined by the final absolutive." This means that in a clause with a final transitive stratum the gender will be determined by the final direct object. In a clause with a final intransitive stratum the gender will be determined by the final subject. Looking at chart (48), it can be seen that in Construction 1, gender is determined by the direct object. This is evidence that Construction 1 clauses are finally transitive, or ergative clauses (as defined in this article). Only by accepting clauses in Construction 1 as being ergative clauses can gender be explained in this simple way.

The second reason that Construction 1 clauses should be considered ergative clauses is because of third person agreement. In Madija, agreement with a third person subject has three forms. The morpheme *i-* is used only with transitive verbs in Construction 1. It is never used with intransitive clauses. Since languages can mark an ergative subject differently than an absolutive one, this is a reasonable hypothesis for Madija. The morpheme *i-* is used if the subject is a final ergative. The morpheme Ø- is used if the subject is a final absolutive. Accepting Construction 1 as an ergative clause enables a simple explanation for third person agreement. The structure for this construction looks like this:

(54)



3.2.3 Summary

By considering clauses in Construction 1 to be ergative clauses, two of the problem areas with Madija predicates are simplified. These are third person agreement and gender agreement. The morpheme *i-* shows agreement with a third person ergative subject while Ø- shows agreement with a third person absolutive subject. Evidence for this is given by *i-* being used only with finally transitive clauses. When the clauses in Construction 1 are considered ergative clauses, gender agreement can be explained with the notion of absolutive, as suggested by Adams and Marlett (1987). The plural object agreement *ta-* gives another reason for considering these clauses finally transitive. It occurs only with Construction 1 and agrees with the direct object. Plural subject

agreement is not yet fully explained. It will be handled in section 4. The rules used in this section are listed here. Several of them will be modified later.

(55) *Gender agreement* (from Adams and Marlett 1987):
Gender agreement in the clause is determined by the final absolutive.

Number agreement:
Use *ta-* for plural, distributive 2;
Use *-bak^{h}i* for plural animate objects.
Only one morpheme showing number agreement with an object can occur in a clause.

Person agreement:
Use *i-* for third person ergative
Use *Ø-* for third person absolutive

3.3 Construction 2

Examining Construction 2 will further clarify the morphemes used for third person agreement. Construction 2, although using the same verbs seen in ergative clauses, is very different from these ergative clauses. Transitive verbs in this construction act just like the unergative verbs discussed in section 2. Both unergative verbs and transitive verbs in Construction 2 use *Ø-* for third person agreement.

(56) *Unergative verbs*

a. Haha Ø-na-haro.
laugh 3-Aux-Comp.F
She laughed.

b. Haha Ø-na-hari.
laugh 3-Aux-Comp.M
He laughed.

Construction 2

c. Kodzo ts^{h}ite Ø-na-hari.
lizard shoot 3-Aux-Comp.M
He shot the lizard.

d. Aoi ts^{h}ite Ø-na-hari.
tapir shoot 3-Aux-Comp.M
He shot the tapir.

e. Kodzo ts^{h}ite Ø-na-haro.
lizard shoot 3-Aux-Comp.F
She shot the lizard.

Gender in both types of clauses is determined by the subject. This is clearly seen in sentence (56d) where *aoi* 'tapir' is feminine. In addition, both types of clauses use *ki-* for plural subject agreement.

(57) *Unergative*

a. Bak^{h}o Ø-*ki*-na-hari.
arrive 3-Pl-Aux-Comp.M
They arrived.

b. Haha ti-*ki*-na-haro.
laugh 2-Pl-Aux-Comp.F
You (plural) laughed.

Construction 2

c. Kodzo ts^{h}ite Ø-*ki*-na-hari.
lizard shoot 3-Pl-Aux-Comp.M
They shot the lizard.

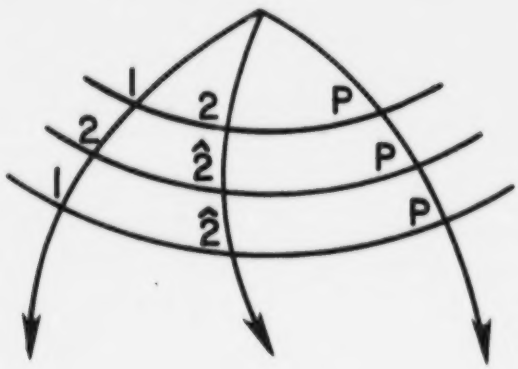
d. Kodzo ts^{h}ite ti-*ki*-na-haro.
lizard shoot 2-Pl-Aux-Comp.F
You (plural) shot the lizard.

Since transitive verbs in Construction 2 act just like unergative verbs, and not at all like the ergative clauses discussed in the last section, it is reasonable to consider that they may be finally intransitive clauses. Adams and Marlett (1988) have suggested that these clauses have the internal structure of an antipassive clause. Although the verb is transitive, when it appears in Construction 2 the clause is finally intransitive.

3.3.1 Antipassive

In 1977 Postal published a paper on antipassive clauses and proposed the following relational diagram as the universal structure for them.

(58)



With an antipassive, the initial stratum is transitive. Then the initial 1 retreats to a 2, putting the existing 2 en chomage. Since a clause must always have a final subject, the 2 advances to a 1. The result is a transitive verb in an intransitive structure. This structure was not accepted by all linguists, because the second stratum seemed to have no motivation. Evidence for the initial/final 1 being a 2 at some stratum was found in Choctaw (Davies 1984). The characterization of antipassive, as shown in example (58), is accepted by RG as part of the universal grammar available to all languages.

3.3.2 Syntactic arguments

For Construction 2 to be considered an antipassive it must have no final 2. I will argue that clauses in Construction 2 are finally intransitive on the basis of gender, person agreement, and plural object agreement.

Adams and Marlett (1987) have stated that the gender agreement of a clause is determined by the final absolutive. In a finally transitive clause the direct object is the absolutive. If clauses with a transitive verb in Construction 2 are finally transitive, then the direct object will determine the gender. The noun *bani* 'meat' is masculine, while *papeo* 'paper' is feminine.

(59) a. `Bani mitha Ø-na-hari.`
`meat buy 3-Aux-Comp.M`
He bought meat.

b. `Papeo mitha Ø-na-hari.`
`paper buy 3-Aux-Comp.M`
He bought paper.

c. `Bani mitha Ø-na-haro.`
`meat buy 3-Aux-Comp.F`
She bought meat.

d. `Papeo mitha Ø-na-haro.`
`paper buy 3-Aux-Comp.F`
She bought paper.

The gender in these clauses is clearly not being determined by *bani* 'meat' or *papeo* 'paper', which are the initial direct objects. Instead it is being determined by the initial subject. There are two possibilities. One, the rule for gender agreement is inadequate and needs to be modified in some way. Two, although these clauses have an initial transitive stratum, they do not have a final transitive stratum. They are finally intransitive, making the initial subject the final absolutive. Let us assume first of all that these clauses do have a final 2 and that the rule for determining gender should be changed. The notion of absolutive could not then be used to describe gender; instead, a disjunction would need to be written to cover the facts.

(60) Gender agreement of the clause is determined

a. by the final subject of a finally intransitive clause or a finally transitive clause using Ø- for third person agreement,

b. by the final direct object of a finally transitive clause using i- for third person agreement.

This rule, however, causes problems for third person agreement. If clauses using transitive verbs in Construction 2 have a final 2, then they would be, by the definition used in this article, ergative clauses. However, they do not use the third person ergative agreement *i-*. The rule for third person agreement would also need to be rewritten as a disjunction. In the new rule for person agreement there is no way of predicting which third person agreement prefix to use with a finally transitive clause.

(61) *Person agreement:*

a. Use Ø- for third person with finally intransitive clauses or with finally transitive clauses in Construction 2.

b. Use i- for third person with finally transitive clauses in Construction 1.

Carrying this one step further, if these clauses are finally transitive they should show agreement with plural animate direct objects. We would expect *-bak^{h}i* to be used frequently in these sentences. Instead, we find that it is not used even in situations where we would expect it to appear.

(62) Dzomahi ia k^{h}a Ø-na-i...
jaguar us crack.with.teeth 3-Aux-Inc.M
A jaguar could have eaten us...

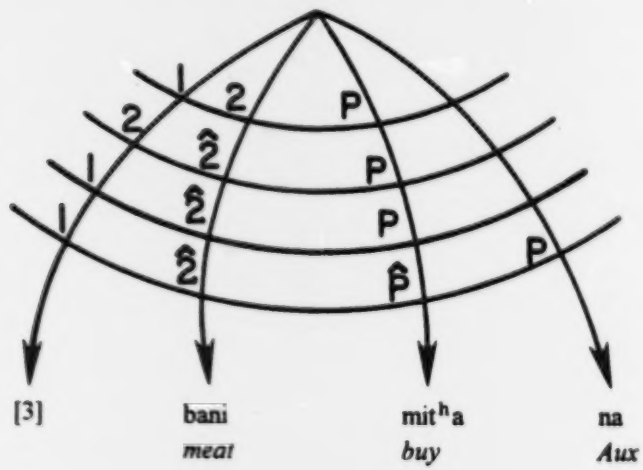
In clause (61) *ia* 'us' is plural. If we assume it is the direct object as well, the absence of *-bak^{h}i* on the verb must be explained. This demands that the number agreement rule be changed in regard to *-bak^{h}i*. The revision must be more drastic than that, however. If these clauses are finally transitive they should also be able to use the plural distributive morpheme *ta-*. No examples of such a sentence can be found. The entire number agreement rule must be rewritten.

(63) *Number agreement*
a. Use *ta-* for a plural distributive direct object in Construction 1.
b. Use *-bak^{h}i* for a plural animate object unless that object is the direct object of a Construction 2 clause.

Assuming that clauses in Construction 2 have a final 2 presents problems for person agreement, gender, and number agreement. The rules that must be written are complicated disjunctions that offer no explanations. A much better analysis is available.

The antipassive analysis would give this diagram to sentence (59c):

(64)



The antipassive analysis claims that these clauses are finally intransitive. This analysis avoids the problems caused by assuming these clauses are finally transitive. The gender agreement rule proposed by Adams and Marlett (1987) can now explain gender in these clauses. Although antipassive clauses have an initial absolutive that is a direct object, it is not this that determines gender agreement. The agreement rule states that the final absolutive decides which gender the clause will be. The final absolutive of an antipassive clause is the final subject. Accepting the antipassive analysis also allows the rules for person and number agreement to be written simply. The verb agreement rule will now specify the final object with respect to number. This explains the absence of *-bak^{h}i* in antipassive clauses. Although they have an initial direct object, they have no final one.

(65) *Verb agreement*: The final verb agrees with the final subject in person and number and with the final animate object in number.

There is no need to write a disjunction to exclude *-bak^{h}i* from occurring on these clauses, as they no longer meet the requirements for its use. The rule as presently stated predicts that *-bak^{h}i* will not occur on an antipassive clause. The morpheme *i-* can be specified as agreeing with a final third person ergative while *Ø-* agrees with a final third person absolutive. The antipassive analysis explains the facts and allows a simple grammar to be constructed.

3.3.3 Summary

I have given arguments against positing a final 2 in Construction 2. I have shown that assuming a final 2 in these clauses would complicate the grammar and is less explanatory. On the other hand, assuming that these clauses are antipassive and finally intransitive results in a clear, simple, explanatory grammar. The rules used in this last section are summarized here.

(66) *Verb agreement:* The final verb agrees with the final subject in person and number and with the final animate object in number.

Number agreement:
Use *to-* for plural, distributive 2
Use *-bak^{h}i* for plural, animate objects

Only one morpheme showing number agreement with an object can occur in a clause.

Person agreement:
Use *i-* for third person ergative
Use *Ø-* for third person absolutive

Gender agreement: Gender agreement in the clause is determined by the final absolutive.

3.4 Construction 3

Many of the problem areas with Madija predicates mentioned in section 1 have been cleared up in the preceding sections. This section examines the third construction used with transitive verbs and completes the explanation for third person morphemes. Construction 3 has its own form of third person agreement, *to-*.

(67) a. Oa ts^{h}ite *to*-na-haro.
1 shoot 3-Aux-Comp.F
Someone shot me. OR *I was shot.*

b. Aoi dzoho *to*-na-haro.
tapir carry 3-Aux-Comp.F
Someone carried the tapir. OR *The tapir was carried.*

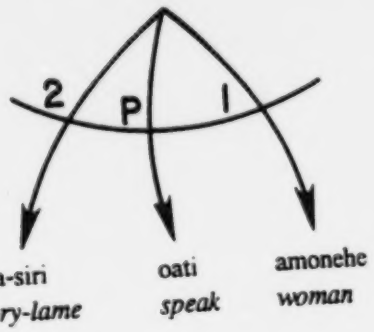
This third person agreement should not be confused with the morpheme *to-* mentioned in section 2, example (14). In Construction 3 there is no semantic notion of motion away. The morpheme *to-* is also used as the third person agreement for an entire class of adjective predicates, discussed in section 4. There does not seem to be any way, with my present understanding of Madija, to combine the uses of the morpheme *to-* under one rule. Instead it seems best to assume that *to-* is three separate morphemes that should not be related in the analysis.

One characteristic of Construction 3 is that the agent is almost always unspecified. This is so widespread that only one example of a clause in Construction 3 has been found where the agent is identified.

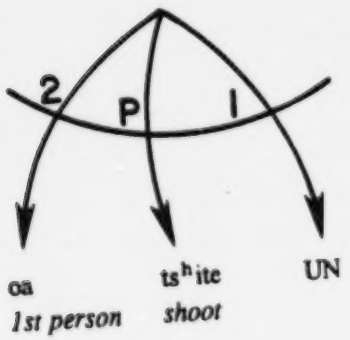
(68) *Construction 3*
Naraa ima-siri oati to-ki-na-haro, amonehe.
but story-lame speak 3-Pl-Aux-Comp.F woman
But gossip was spoken by the women.

Although (68) has a nominal that could be considered the subject while those clauses in (67) do not, the initial strata of both are identical. RG would assign the grammatical relation of subject to 'woman' in example (68). The clause in (67a) would have an initial subject arc headed by UN.

(69) a.



b.



UN stands for Unspecified, that is, the initial subject has no phonetic form in the clause and has no specification for gender, person, or number. The clause has no overt subject nominal. The initial stratum shown in (69) is no different from the initial stratum of either the ergative or the antipassive clauses discussed earlier in this article and diagrammed in (54) and (64). The difference in third person agreement must come from some later stratum. There are three possibilities: passive, unspecified subject, or impersonal construction. Each possibility will be discussed in the following sections.

3.4.1 Passive

If the clauses in (70) are personal passives, then the overt nominal must be the subject of a finally intransitive clause. This would explain why the gender in these clauses is determined by the overt nominal.

(70) a. Aoi dzoho to-na-haro.
tapir carry 3-Aux-Comp.F
Someone carried the tapir. OR *The tapir is carried.*

b. Kodzo dzoho to-na-hari.
lizard carry 3-Aux-Comp.M
Someone carried the lizard. OR *The lizard is carried.*

c. Oa tsʰite to-na-haro.
1 shoot 3-Aux-Comp.F
Someone shot me. OR *I was shot.*

However the idea that *aoi* 'tapir', *kodzo* 'lizard', and *oa* '1 person' are the final subjects of the clauses in (70) must be rejected for two reasons. First, they do not determine person agreement on the verb as final subjects do. Although *aoi* is third person while *oa* is first person, the agreement on the verb in both cases is *to-*. Second, when this nominal is plural it does not determine plural subject agreement. Instead the morpheme for a plural object appears on the verb. In (71) *kodzo* 'lizard' must be the direct object.

(71) Kodzo tsʰite to-na-*bakʰi*-hari.
lizard shoot 3-Aux-Pl.O-Comp.
Someone shot the lizards. OR *Lizards were shot.*

The passive analysis must be rejected for Construction 3. The initial direct object cannot be the final subject because it does not determine person agreement or plural subject agreement on the verb. There are two other hypotheses to be explored: that of an unspecified subject and that of a dummy subject.

3.4.2 Unspecified subject

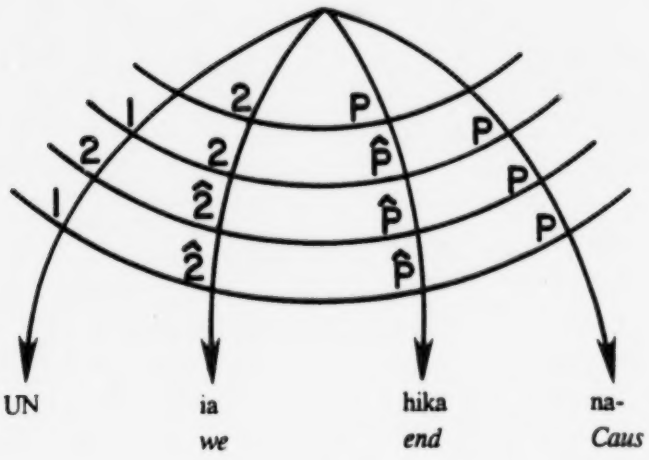
It has already been stated that clauses in Construction 3 usually have unspecified subjects. If this is chosen as the analysis of these clauses we would expect clauses with unspecified subjects to always use the morpheme *to-*. This is not the case. Some clauses with unspecified subjects occur with the absolutive subject agreement *Ø-*.

(72) Ia Ø-na-hika-i toi.
we 3-Caus-end-Inc.M Fut
Someone will kill us. OR *We will be killed.*

In example (72) an intransitive verb undergoes clause union with the causative *na-*. This should create a transitive sentence, yet person agreement is with a third person absolutive subject. The final subject cannot be *ia* 'we'. First and second person are always feminine in Madija, as mentioned in section 3.1. If this is an intransitive clause with *ia* 'we' as the subject, then the gender of the clause would have to be feminine. By the same reasoning this clause cannot be finally transitive, since *ia* 'we' as the direct object would determine gender agreement. The morpheme *ia* must be neither the subject nor the direct object. The antipassive construction, discussed in the previous section, makes the right predictions about this sentence.[3] A stratal diagram of sentence (72) shows the grammatical relations involved.

[3] Both examples of clauses with a causative morpheme have been antipassive. These clauses can also be finally transitive as shown in this example.

(73)



From example (73) we see that having an unspecified subject is not sufficient for a clause to use to- for person agreement.

The second argument against using the unspecified subject analysis is that not every clause using *to-* has an unspecified subject. This was shown in example (68). The morpheme *to-* is occurring here although the subject is specified. The unspecified analysis is not supported by the data. The morpheme *to-* does not occur on every clause with an unspecified subject and does appear on clauses that do not have unspecified subjects. The analysis left is that of a dummy subject.

3.4.3 Dummy Subject

A dummy is a nominal that has no inherent meaning. It is not authorized by a verb but enters at a non-initial stratum to provide a grammatical sentence. Clauses with dummies are called impersonal constructions. There is no overt word in Madija that can be called the dummy subject. If a dummy is present then it must be silent; that is, it has no phonetic realization. Perlmutter argues that silent dummies would exist in languages where pronouns are silent unless they are under emphasis or contrast (Perlmutter 1983). This is the case in Madija, as shown in section 1, example (6). Unstressed subject pronouns are dropped in Madija; therefore it is possible for Madija to have a silent dummy.

The analysis of Construction 3 as an impersonal construction has several advantages over the unspecified subject analysis. One of the problems we noted with the unspecified subject analysis is that not every sentence with an unspecified subject uses *to-*. Example (75) contains a clause that has an unspecified subject but not a dummy subject.

(75) Ia Ø-na-hika-i toi.
we 3-Caus-end-Inc.M Fut
Someone will kill us. OR *We will be killed.*

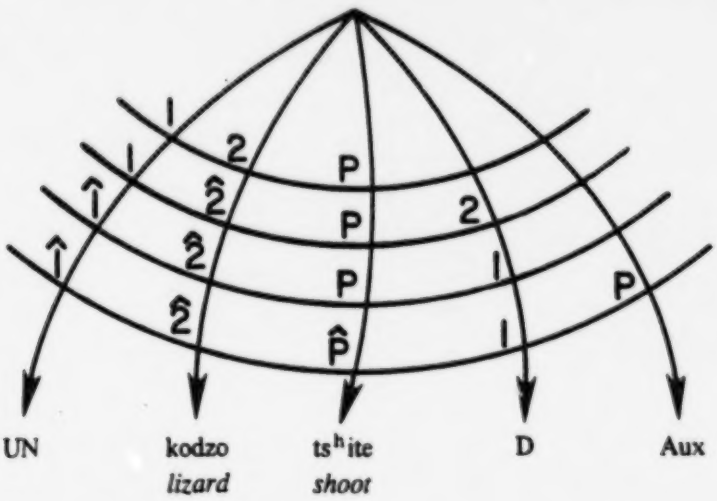
---

(74) Pok^{h}a amonehe i-n-ebo-hera-ni.
3.Gen woman 3-Caus-stay-Neg-Inc.F
He did not leave his wife alone.

From example (75) we see that unspecified subjects have no special morphology to distinguish them from other subjects. This clause could be handled the same way that a clause with a specified subject is handled. If the morpheme *to-* is analyzed as showing agreement with a dummy then it does not apply to example (75). An unspecified subject and a dummy subject are two different things.

A dummy is restricted to heading a 1 or 2 arc by the Nuclear Dummy Law (Perlmutter and Postal 1983b). I will argue that in Madija the dummy enters as a 1. If the dummy enters as a 2, the final stratum is different than if the dummy enters as a 1. If the dummy enters as a 2 with a transitive verb, it would put the existing 2 en chomage. Since the clauses we are considering have the dummy as the final subject, the dummy must advance to a 1. This puts the existing 1 en chomage as well. We are left with a finally intransitive clause where the only final term arc is the dummy. Example (71) would have this stratal diagram under the impersonal passive analysis.

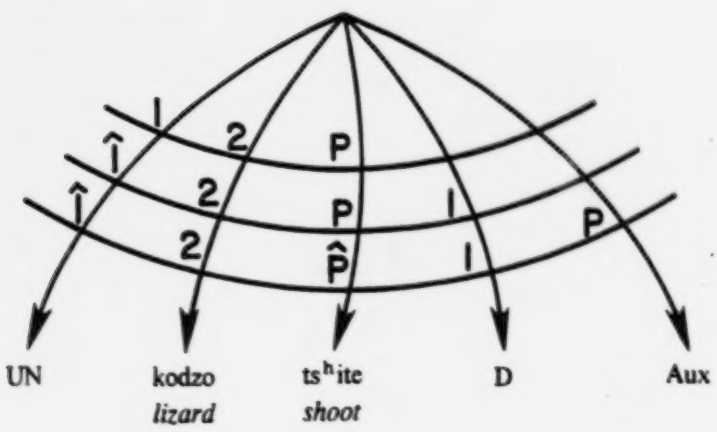
(76)



This construction is known as an impersonal passive and has been argued for in Seri (Marlett 1984), Irish, Maasai, Spanish, and Welsh (Perlmutter and Postal 1984), as well as in other languages.

When the dummy enters as a 1, the existing 1 is put en chomage. A dummy cannot retreat, so the existing 2 remains a 2 unless there is some other process going on in the clause. This produces a clause that is finally transitive.

(77)



This construction would be called an impersonal transitive. Although impersonal transitives have not been proven in the literature, there is precedent for a dummy entering as a 1. Perlmutter (1983) proves this for impersonal unergatives in Italian and Rosen (1981) for impersonal reflexives in Italian.

The impersonal passive and impersonal transitive constructions differ in two significant ways. The impersonal passive claims that the clause is finally intransitive, whereas the impersonal transitive claims that it is finally transitive. Second, each construction claims a different nominal as the brother-in-law. In (76) the brother-in-law is the initial 2, *kodzo*. In (77) the brother-in-law is the initial 1, UN. Some languages use the brother-in-law to determine agreement on the verb. This says that if the nominal that determines agreement is a dummy, then the brother-in-law of that dummy will determine the agreement. If Madija uses brother-in-law agreement, then this can be used to determine which nominal acts as the brother-in-law. That, in turn, will tell us what the dummy enters as. The verb agreement rule in Madija, given in (66) and repeated here, states

(78) *Verb agreement:* The final predicate agrees with the final subject in person and number and with the final object in number.

The final subject of Construction 3 clauses is a dummy. That means that the brother-in-law could be determining either person agreement or number agreement on the verb.

(79) a. Poa ts^hite to-na-hari.
he shoot 3-Aux-Comp.M
Someone shot him. OR *He was shot.*

b. Poni ts^hite to-na-haro.
she shoot 3-Aux-Comp.F
Someone shot her. OR *She was shot.*

c. Oa ts^hite to-na-haro.
1 shoot 3-Aux-Comp.F
Someone shot me. OR *I was shot.*

Although (79a) has a third person initial 2 and (79c) has a first person initial 2, both clauses have the same agreement on the verb. If we adopt the impersonal passive analysis the brother-in-law cannot be determining person agreement on the verb. With the impersonal transitive analysis there is no evidence that the brother-in-law is determining person agreement either. There is still the possibility that the brother-in-law can determine number agreement.

(80) a. Kodzo tsʰite to-na-*bakʰi*-hari.
lizard shoot 3-Aux-Pl-Comp.M
Someone shot the lizards. OR *Lizards were shot.*

b. Aoi tsʰite to-na-*bakʰi*-haro.
tapiers shoot 3-Aux-Pl-Comp.F
Someone shot tapirs. OR *Tapirs were shot.*

c. Tia-deni to-nebo-*bakʰi*-haro.
2-Pl 3-leave-Pl-Comp.F
Someone left you. OR *You (plural) were left.*

d. Naraa ima-siri oati to-*ki*-na-haro, amonehe.
but story-lame speak 3-Pl-Aux-Comp.F woman
But gossip was spoken by the women.

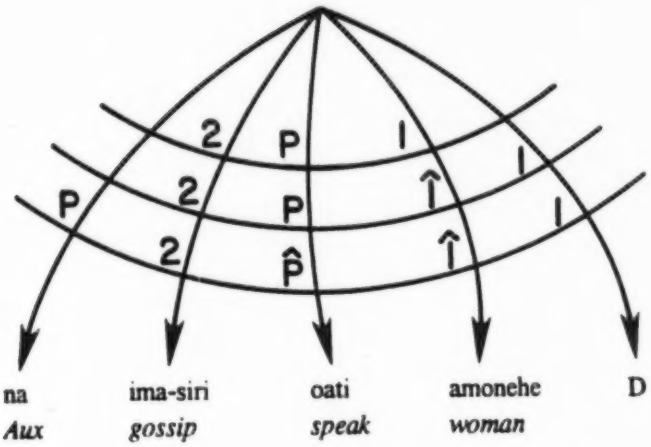
The plural agreement *-bakʰi* in (80a-c) cannot be caused by brother-in-law agreement. Even if the brother-in-law were the initial 2, as shown in example (76), it could only suppiy semantic information like plural or singular. The grammatical relation of subject is supplied by the dummy arc. The plural agreement of a subject arc in Madija is *ki-* or *-mana*.

In (80d) we do see an impersonal construction with the plural *ki-*. The brother-in-law in (80d) is *amonehe* 'woman', the initial 1 of the clause. This argues against the impersonal passive analysis and for the impersonal transitive analysis. The rules for Madija must state that brother-in-law agreement is used. It will also specify that *to-* is used with a dummy subject as well as for motion away with intransitive verbs.

(81) The brother-in-law option is used.
Use *to-* for third person agreement with:
a. a dummy subject
b. an intransitive clause with a semantic component 'motion away from'

There is another reason for choosing the impersonal transitive analysis over that of the impersonal passive. In section 3.3 it was shown that *-bakʰi* agrees only with a final animate 2 or 3, never with a chomeur. The clauses in (80) use *-bakʰi*, which is evidence that they are finally transitive. Only the impersonal transitive analysis claims that the clause is finally transitive. This would give the following stratal diagram for Construction 3 clauses:

(82)



It is best to consider Construction 3 as an impersonal transitive. The analysis of a dummy subject is better than that of an unspecified subject, because it covers all known grammatical sentences without making wrong predictions. The construction must be considered an impersonal transitive instead of an impersonal passive, because there is evidence that the clause is finally transitive and that the brother-in-law is the initial 1.

3.5 Summary

I have argued for three constructions using transitive verbs: the ergative construction, the antipassive, and the impersonal transitive. Through the discussion of unergative, unaccusative, and transitive verbs, the following rules have been developed or supported.

(83) *Verb agreement:* The final predicate agrees with the final subject in person and number and with the final animate object in number.
The brother-in-law option is used.

Number agreement:
Use *ta-* for plural, distributive 2;
Use *-bak^{h}i* for plural objects.
Only one morpheme showing number agreement with an object can occur in a clause.

Person agreement:
third person
Use *to-* for
a. a dummy subject;
b. an intransitive clause with a semantic component 'motion away from';
Use *i-* for ergative subject;
Use *Ø-* for absolutive subject.

Gender agreement: Gender agreement in the clause is determined by the final absolutive.

Auxiliary Rule: Use the auxiliary verb when there is an initial 1.

Causative na-: The causative *na-* can be used only when there is no 1 in the preunion stratum.

4. Adjectival predicates

This last group of predicates fits the prototype of adjective.

(84)

akats^{h}e	*pleasant*
ak^{h}ara	*full*
ak^{h}o	*stingy*
badzira	*small*
bika	*good*
bida	*bitter*
dzibei	*colorful*
hits^{h}i	*stiff*
hots^{h}a	*foul*
koma	*painful*
k^{h}ara	*hard*
mak^{h}o	*red*
mahona	*sweet*
napo	*white*
oats^{h}ira	*slow*
pama	*few*
soe	*dark*
tabak^{h}ora	*bad*
tere	*short*

Although these adj*ectives* function like the predicate of the clause, they behave differently from the verbal predicates examined earlier. This class of predicates can occur both with and without the auxiliary verb. When they occur with the auxiliary verb they carry a stative meaning. Without the auxiliary verb a change of state is involved. Stative clauses are shown in (85a-d); change of state clauses are in (85e-h).

(85)

a. O-bika-haro.
1-good-Comp.F
I got better.

b. Ti-bika-haro.
2-good-Comp.F
You got better.

c. To-bika-haro.
3-good-Comp.F
She got better.

d. To-bika-hari.
3-good-Comp.M
He got better.

e. Bika o-na-haro.
good 1-Aux-Comp.F
I was good.

f. Bika ti-na-haro.
good 2-Aux-Comp.F
You were good.

g. Bika t-a-haro.
good 3-Aux-Comp.F
She was good.

h. Bika t-a-hari.
good 3-Aux-Comp.M
He was good.

4.1 Copulative auxiliary verb

The major problem with this group of verbs is their use of the auxiliary verb. Rosen (1984) has shown that adjective-like verbs are unaccusatives; they have an initial 2 but no initial 1. The Auxiliary Rule, stated last in (83), excludes these verbs from using the auxiliary verb.

(86) *Auxiliary Rule:* Use the auxiliary verb when there is an initial 1.

Either the auxiliary rule must be weakened in some way, or the auxiliary occurring after the adjectival predicate is a different morpheme from that described in (86). There is actually some evidence that the two auxiliaries are not the same. When the third person agreement prefix *to-* is used with the auxiliary following a transitive verb, both the agreement prefix and the auxiliary verb retain their form: *to-na*. When this prefix is added to the auxiliary verb following an adjectival verb, they contract to *t-a*. Another possibility is that this is evidence for *to-* being two different morphemes.

(87) a. Poa ts^{h}ite *to-na*-hari.
he shoot 3-Aux-Comp.M
Someone shot him OR *He was shot.*

b. Poni ts^{h}ite *to-na*-haro.
she shoot 3-Aux-Comp.F
Someone shot her OR *She was shot.*

c. Bika *t-a*-haro.
good 3-Aux-Comp.F
She was good.

d. Bika *t-a*-hari.
good 3-Aux-Comp.M
He was good.

A second difference between the two auxiliaries is in their negative forms. The auxiliary that follows unergative and transitive verbs takes the morpheme *-hara/-heri*, while the auxiliary following an adjectival predicate takes no negative morpheme. Instead, the adjectival predicate receives the suffix *-ra*.

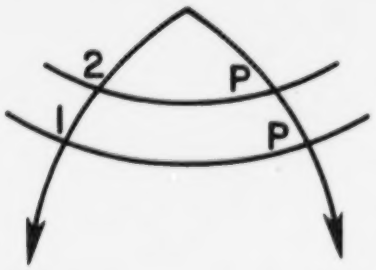
(88) a. Ohi ti-ki-na-*heri*-hi!
cry 2-Pl-Aux-Neg.F-Imp
(You plural) Don't cry!

b. Oa pa dots^{h}e o-na-maro-*hara*.
I * send 1-Aux-up-Neg.M
I didn't send him up.

c. Mihi-*ra* o-na-ni.
able-Neg 1-Aux-Inc.F
I'm not able.

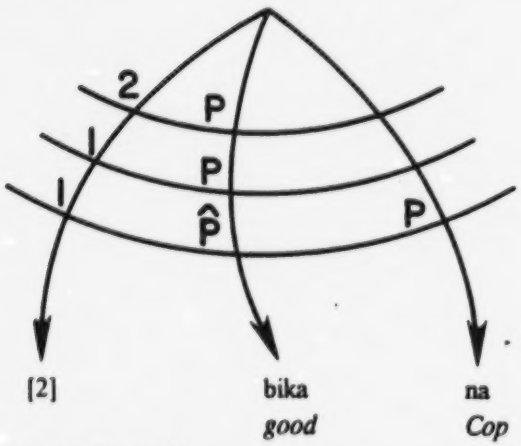
These differences give evidence that the auxiliary that follows an adjectival predicate could be a different morpheme from the one described in the Auxiliary Rule. To avoid confusing the two morphemes, the second auxiliary will be glossed 'Cop', for 'copulative'. The copulative auxiliary introduces the idea of stative to the clause. There are two stratal diagrams possible for adjectival predicates, depending on whether or not they use the copulative auxiliary.

(89) a.



You got better.

b.



You were good.

The only other problem with this class of verbs is that of third person agreement. As can be seen from example (87), they use the morpheme *to-* for third person agreement. This fact was mentioned, but not discussed, in section 3.4 when impersonal transitives were analyzed. Both singular and plural adjectival predicates use *to-* if the copulative auxiliary is not used. However, if the copulative auxiliary is used, the morpheme *to-* occurs only with singular adjectival predicates, as shown in (90). When *to-* and the auxiliary verb come together they contract to *ta* (Adams and Marlett ms.).

(90) a. `To-bika-haro.`
`3-good-Comp.F`
She got better.

b. To-bika-mana-haro.
3-good-Pl-Comp.F
They got better.

c. Bika t-a-haro.
good 2-Cop-Comp.F
She was good.

d. Bika-kʰiri na-haro.
good-Pl Cop-Comp.F
They were good.

By adding the information shown in (90), a full rule for person agreement can be written. The agreement for first and second person is pulled from section 1. These rules are disjunctively ordered.

(91) *Person agreement:*

First person
Use *o-* for singular subject
Use *i-* for plural subject

Second person
Use *ti-*

Third person
Use *to-* for
a. dummy subject
b. intransitive clause with semantic component of 'motion away from'
c. adjectival predicates without the copulative auxiliary
d. singular adjectival predicates with the copulative auxiliary
Use *i-* for ergative subject
Use *Ø-* for absolutive subject

4.2 Plural subject agreement

The only problem left to be addressed in this article is that of plural subject agreement. This was left until last because each class of verbs or construction does something different, and all must be considered in order to form a hypothesis. Adjectival predicates act differently based on the presence or absence of the copulative auxiliary.

(92) a. Ti-bika-*mana*-haro.
2-good-Pl-Comp.F
You (plural) got better.

b. To-bika-*mana*-haro.
3-good-Pl-Comp.F
They got better.

c. Bika-*kʰiri* ti-*ki*-na-haro.
good-Pl 2-Pl-STAT-Comp.F
You (plural) are good.

d. Bika-*kʰiri* na-haro.
good-Pl STAT-Comp.F
They are good.

The morpheme *-kʰiri* is used only on this class of verbs and only when the copulative auxiliary is present. The morphemes *ki-* and *-mana* are both used on other classes of verbs. Examples of these will be pulled from their respective sections in this article for comparison.

(93) *Unaccusative*

a. Ti-tsʰona-*mana*-haro.
2-fall-Pl-Comp.F
You (plural) fell.

b. Ø-oada-*mana*-haro.
3-sleep-Pl-Comp.F
They slept.

Unergative

c. Ohi ti-*ki*-na-haro.
cry 2-Pl-Aux-Comp.F
You (plural) cried.

d. Bakʰo Ø-*ki*-na-hari.
arrive 3-Pl-Aux-Comp.M
They arrived.

Transitive/ergative

e. Kodzo tsʰite ti-*ki*-na-hari.
lizard shoot 2-Pl-Aux-Comp.M
You (plural) shot the lizard.

f. Kodzo tsʰite i-na-*mana*-hari.
lizard shoot 3-Aux-Pl-Comp.M
They shot the lizard.

Transitive/antipassive

g. Kodzo tsʰite ti-*ki*-na-haro.
lizard shoot 2-Pl-Aux-Comp.F
You (plural) shot the lizard.

h. Kodzo tsʰite Ø-*ki*-na-hari
lizard shoot 3-Pl-Aux-Comp.M
They shot the lizard.

Transitive/impersonal transitive (rare)

i. Naraa ima-siri oati to-*ki*-na-haro, amonehe
but story-lame speak 3-Pl-Aux-Comp.F woman
But gossip was spoken by the women.

These facts are placed in chart form below for easier reference.

(94)

	ki-	-mana	-kʰiri
unergative	X		
transitive			
ergative/2P	X		
/3P		X	
antipassive	X		
imp. trans.	X		
adjectival			
copula/2P	X		X
/3P			X
no copula		X	
unaccusative		X	

When we remember that the stratal diagram of adjectival predicates without the copulative auxiliary is identical to that of an unaccusative verb, it is reasonable that they would both use *-mana*. Other constructions use *ki-*, with the exception of third person ergative and third person adjectival predicates with the copulative auxiliary. The adjectival predicates with the copulative auxiliary use *-kʰiri* for both second and third person. From this chart it is tempting to say that the class of verb determines which plural morpheme is used and to list the exceptions. However, there are a few other facts that must be considered before a hypothesis is reached. A small class of transitive verbs that do not take the auxiliary verb were mentioned in section 2. These verbs never take *ki-* but always use *-mana*.

(95) Ti-di-*mana* nahi bado, tia naki.
2-pick.up-Pl there deer you also.
You harvest deer, you also.

This suggests that the important factor is not the class of verb or construction used but the presence of the auxiliary verb. Since the discussion from now on depends on the grammatical relations of each construction, they are given here. In order to fit them into one chart, stratal diagrams are not used. Simply the grammatical relations of each stratum are listed. The symbol P_{Aux} stands for the auxiliary verb while P_{Cop} stands for the copulative auxiliary verb.

(96)

a. unaccusative	b. antipassive
2 P	1 2 P
1 P	2 $\hat{2}$ P
	1 $\hat{2}$ P
	1 $\hat{2}$ $\hat{P}$ P_{Aux}
adjectival	unergative
no cop. aux	
2 P	1 P
1 P	1 $\hat{P}$ P_{Aux}
ergative	impersonal
no aux.	transitive
1 2 P	1 2 P
	$\hat{1}$ 2 P 1
	$\hat{1}$ 2 $\hat{P}$ 1 P_{Aux}
c. ergative	d. adjectival
	with cop.
	aux.
1 2 P	2 P
1 2 $\hat{P}$ P_{Aux}	1 $\hat{P}$ P_{Cop}

The clauses in group (a) always use *-mana*. Those in group (b) always use *ki-*. Group (c) uses *-mana* for third person and *ki-* for second person. Group (d) always uses *-k^{h}iri* and uses *ki-* as well for second person. Steve Marlett (personal communication) has suggested that second and third person be treated separately. The rule for third person should group unaccusatives and ergative clauses together since they all take *-mana*. He suggests that the relevant factor is the presence of an initial 2 which is a final term. An unaccusative meets this by having an initial 2 which becomes a final 1. An ergative clause has an initial 2 which is the final 2. Unergatives have no initial 2, and antipassives have an initial 2 that is not a final term but a chomeur. This works for every construction but the impersonal transitive, where plural subject agreement is rare. This gives the following chart for plural subject agreement.

(97)

	ki-	-mana	-k^{h}iri
2P	any auxiliary	elsewhere	adj. P chomeur
3P	elsewhere	initial 2 that is a final term	adj. P chomeur

There is one more fact that must be considered before a final rule for plural subject agreement is formed. Whenever a clause has a directional affix, the plural subject agreement is *-mana*, even if it is an unergative or antipassive clause.

(98) a. Khobo Ø-na-ridza-*mana*-hari.
crawl 3-Aux-around-Pl-Comp.M
They crawl around.
b. Dzoho dzoho dzoho Ø-na-ridza-*mana*-ni.
carry carry carry 3-Aux-around-Pl-Inc.F
They (feminine) carry them (masculine) around.

The idea of clause union that was discussed in section 2 is useful here. We have already stated that the auxiliary seems to be necessary for the use of *ki-*. What we have not stated is whether the auxiliary must be the final P. If directionals in Madija are predicates which participate in clause union, then the auxiliary verb *na* would be a P chomeur. By specifying that the *na* auxiliary must be a final P in order to receive the morpheme *ki-* the sentences in (98) are explained. This revision must be used for both second and third person. The idea of an initial 2 which is a final term can no longer be used for third person number agreement. An unergative does not have an initial 2 that is a final term, yet it uses *-mana* when a directional is present. Clauses with third person subjects are different from those with second person subjects in that there are two things needed to select the morpheme *ki-*. They must have an auxiliary which is a final P, AND they can have only one initial nuclear term which is a final term. Only antipassive, unergative, and impersonal transitives meet both of these criteria. A new chart showing plural subject agreement states this hypothesis:

(99)

	ki-	-mana	-k^{h}iri
2P	any final P auxiliary	elsewhere	adjective P chomeur
3P	any final P auxiliary AND only one initial term that is a final term	elsewhere	adjective P chomeur

This needs to be put in the form of a rule.

(100) *Number agreement*:
Plural second or third person subject
Use *ki-* with any final P auxiliary verb; with a third person subject there must also be only one initial nuclear term arc which is a final term
Use *-k^{h}iri* with adjective P chomeur
Use *-mana* elsewhere

The way that the rule in (100) is stated *-mana* will never occur with any of the other plural subject agreement morphemes. Whenever the copulative auxiliary is used, the adjectival predicate is a P chomeur and receives *-k^{h}iri*. Because the copulative auxiliary is an auxiliary which is a final P, it is eligible to receive *ki-* as well. In clauses with a second person subject, we see both of these morphemes occurring in the same clause. Clauses with third person subjects are blocked from using both morphemes by the second stipulation, which states they may have only one initial nuclear term which is a final term.

5. Conclusion

This article set out to explore the class of predicates in Madija. There were four major problem areas related to these predicates. These areas were the distribution of the auxiliary verb, the

selection of the morpheme for plural subject agreement, the determination of gender, and the question of why three distinct morphemes are used for third person agreement. In section 2 intransitive verbs were divided into two subclasses, unergative and unaccusative. The two classes can be distinguished from each other by three tests. An unergative verb always occurs with the auxiliary verb, never occurs with the causative *na-*, and uses *ki-* for agreement with a plural subject. An unaccusative verb never occurs with the auxiliary verb, does occur with the causative *na-*, and uses *-mana* for agreement with a plural subject. This section allowed a rule to be written about the distribution of the auxiliary verb: it occurs when there is an initial 1. It also provided a rule for the causative *na-*: it can occur only when there is no 1 in the preunion stratum.

Section 3 covered transitive verbs and the three constructions in which they occur. Clauses in the first construction were called ergative clauses. These clauses are finally transitive, as shown by the direct object determining number and gender agreement and the use of a special morpheme to indicate third person. This morpheme was analyzed as agreeing with a third person ergative subject. The second construction was analyzed as being an antipassive. Although these clauses use the same verbs as ergative clauses they are finally intransitive. This is shown by the lack of number agreement with the initial direct object, gender agreement with the subject, and the use of the same morpheme for third person agreement as other intransitive clauses. The third construction was analyzed as being an impersonal transitive. It was considered an impersonal construction because of the third person agreement *to-* on the verb. It is a finally transitive clause as shown by agreement in number and gender with a direct object. In this section a rule for person agreement was formed and the rule for gender that was proposed by Adams and Marlett (1987) was defended.

Section 4 looked at adjectival predicates. The auxiliary verb that occurs with this class of predicates was analyzed as being different from the auxiliary verb seen in other sections. The problem of which morpheme is selected for plural subject agreement was also handled in this section. For a complete list of the rules developed and used in this article, see the Appendix.

Appendix: Summary of Rules

Verb agreement:

The final predicate agrees with the final subject in person and number and with the final animate object in number.

The brother-in-law option is used.

Number agreement:

Plural second or third person subject

Use *ki-* with any final P auxiliary verb.

With a third person subject there must also be only one initial nuclear term arc which is a final term.

Use *-kʰiri* with adjective P chomeur.

Use *-mana* elsewhere.

Object agreement:

Use *ta-* for plural, distributive 2.

Use *-bakʰi* for plural animate objects.

Only one morpheme showing number agreement with an object can occur in a clause.

Person agreement: (disjunctive ordering)

First person

Use *o-* for singular subject.

Use *i-* for plural subject.

Second person
Use *ti-* for any subject.
Third person
Use *to-* for:
a. a dummy subject,
b. an intransitive clause with a semantic component 'motion away from',
c. adjectival predicates without the copulative auxiliary,
d. singular adjectival predicates with the copulative auxiliary.
Use *i-* for ergative subject.
Use *Ø-* for absolutive subject.

Gender agreement:
Gender agreement in the clause is determined by the final absolutive.

Auxiliary Rule:
Use the auxiliary verb when there is an initial 1.

Causative *na-*: The causative *na-* can be used only when there is no 1 in the preunion stratum.

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